

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

(12) UK Patent Application (19) GB (11) 2 159 197 A

(43) Application published 27 Nov 1985

(21) Application No 8413363

(22) Date of filing 24 May 1984

(71) Applicant
Johnstone Safety Limited (United Kingdom),
Worsham Mill, Minster Lovell, Oxford OX8 5RX

(72) Inventors
Clive Johnstone
Donovan Richard Toone

(74) Agent and/or Address for Service
Wynne-Jones Laine & James,
22 Rodney Road, Cheltenham, Glos GL50 1JJ

(51) INT CL⁴
E01F 9/00

(52) Domestic classification
E1G 701 711 LJ

(56) Documents cited
None

(58) Field of search
E1G

(54) Improvements relating to temporary road bollards

(57) A temporary road bollard comprises a post 1 which, at its lower end, has a fitment portion 4 leading to a foot 6 which can be dropped into a recess 10 of a reflecting road stud mounting 11 and rotated to locate beneath lugs 12. A support unit 2 is held in place rotatably about the fitment portion by lugs 8 co-operating with a flange 7. Feet 9 on the support unit 2 locate into the corners of the recess 10 so as to hold the post 1 firmly in place against possible tilting.

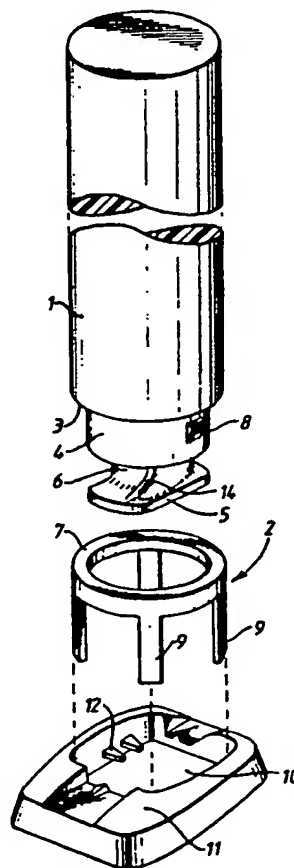
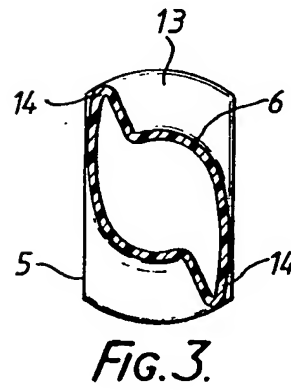
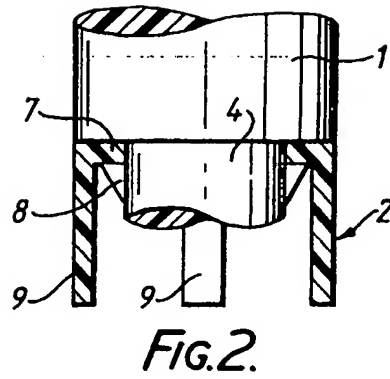
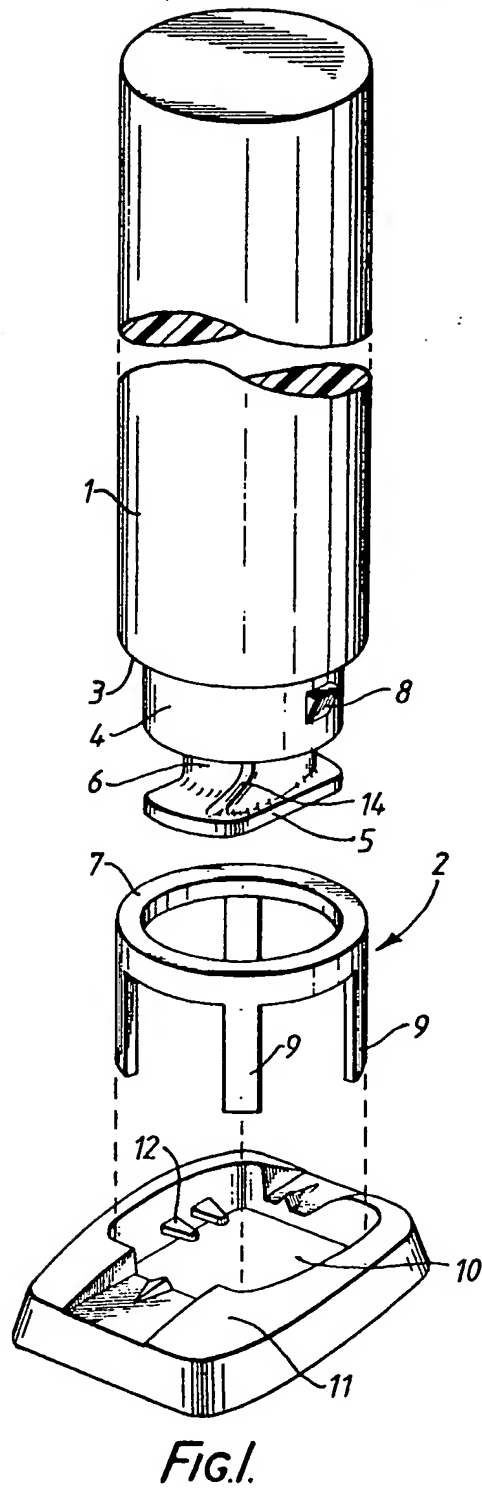


Fig.1.

GB 2 159 197 A

1/2



2/2

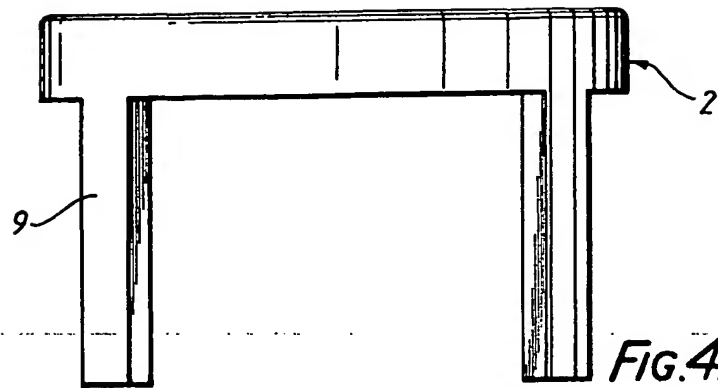


FIG. 4.

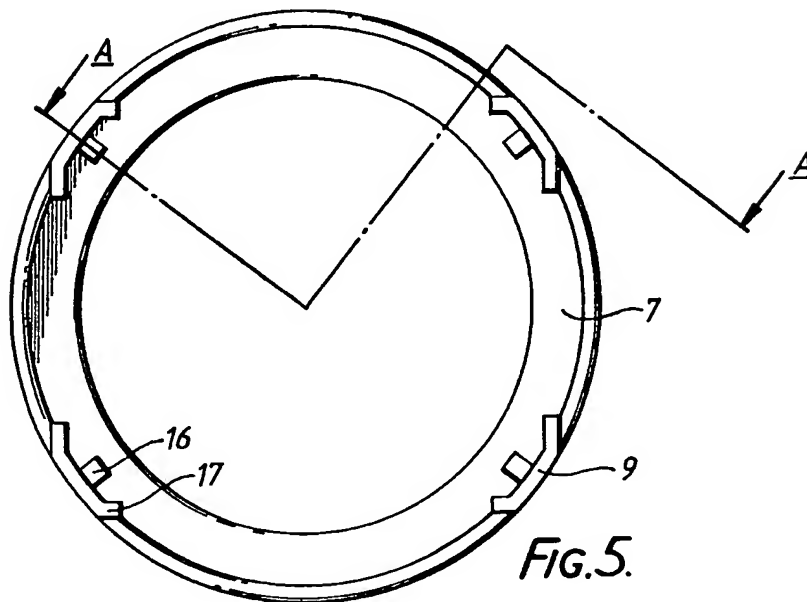


FIG. 5.

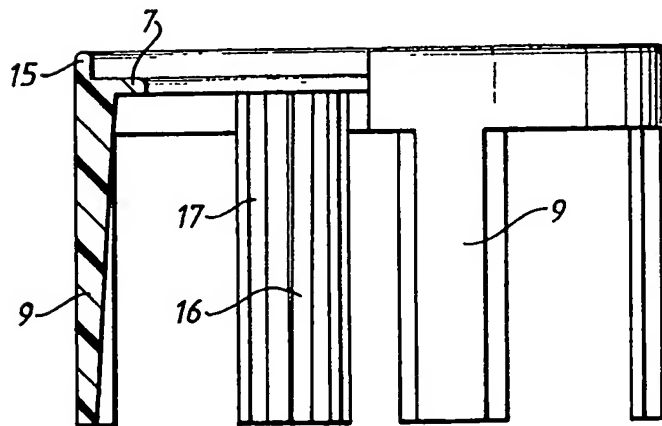


FIG. 6.

SPECIFICATION

Improvements relating to temporary road bollards

5 Temporary road bollards or delineator posts are employed on a large scale to act as traffic indicators or to close off a portion of a road. These bollards or posts are often fitted into
10 the housing of a so-called "catseye" (Registered Trade Mark) which is set into the road surface and thus requires some form of securing arrangement which will fix the bollard in place so that it will not become displaced,
15 such as when subjected to high winds or a glancing blow.

It is an object of this invention to provide a temporary road bollard with a secure mounting to enable it to be secured into a "catseye" housing so that it will normally maintain a substantially upright stance.

Accordingly this invention provides a temporary road bollard adapted to fit within a housing having a recess with lugs projecting
25 inwardly of two facing sides of the recess, but above the floor of the recess, the bollard comprising a cylindrical body and a support unit, the cylindrical body having a fitment
30 portion at one end incorporating a groove and leading to a foot part which can be lowered past the lugs so that, upon subsequent rotation of the body the groove locates about the lugs to secure the body into the housing, the support unit being disposed about the fitment
35 portion so as to be rotatable with respect to the body and defining feet which will locate into the base of the recess of the housing, the body defining a flange which will engage with the upper surface of the support unit, when
40 the bollard is secured in the housing, so that the bollard will be retained in a substantially upright condition.

The groove and foot part of the fitment portion enable the bollard to be engaged
45 within the housing so that it cannot normally be removed without rotating the bollard to release the lugs from the groove. The location of the flange on the cylindrical body portion onto the upper surface of the support unit acts to maintain the bollard in the required
50 substantially upright condition. If desired the portion of the cylindrical body immediately above the flange could incorporate a bellows-like formation which would enable the bollard
55 to flex at that region if struck, for example, by a passing vehicle, the resilience of the bellows portion being such as to cause the bollard to return to the upright condition subsequently. Whilst the cylindrical body could have a
60 flange projecting beyond the circumference of the main body portion, it is preferred that the body should be stepped inwardly where it joins the fitment portions as to define said flange. The cylindrical body and support unit
65 could then essentially define an integral unit

of substantially constant external diameter.

In the preferred embodiment the body and the support unit are interengaged so that they cannot readily be separated but can rotate
70 with respect to each other. The bollard can then be sold as a single integral unit, thus minimising the risk that the support unit will become displaced from the main body portion. There are many ways in which the two
75 parts could be interengaged and one suitable arrangement is achieved by providing that the fitment portion has an inwardly directed flange on the inner circumference thereof which locates over one or more projections on
80 the fitment portion. It may be advantageous to provide that the flanges on the body and on the support unit and the projections define a camming arrangement whereby the support unit will be pressed downwardly into the housing as the body is rotated to locate the groove
85 securely about the lugs. Such an arrangement would provide additional security of the fixing of the bollard into the housing and enhance the tendency for the bollard to maintain a
90 substantially upright condition.

Ideally the support unit will define feet which will locate into the corners of the recess in the housing. It is also preferred that the groove should incorporate stops limiting the
95 extent of rotation of the bollard relative to the lugs and so that the bollard cannot be rotated inadvertently out of engagement with the lugs in the recess.

The invention may be performed in various ways and a preferred embodiment thereof will now be described with reference to the accompanying drawings, in which:

Figure 1 is an exploded perspective view of the parts of a temporary road bollard of this
105 invention to be mounted into a "catseye" housing;

Figure 2 is a vertical cross-section through a support device of the road bollard showing interengagement with the main body portion
110 of the road bollard; and

Figure 3 is a horizontal cross-section through the foot of the main body portion of the road bollard.

The temporary road bollard of this invention
115 as illustrated in the drawings comprises a main post body 1 together with a support unit 2. A shoulder 3 is formed towards the lower end of the body 1 which leads to a fitment portion 4 of reduced diameter carrying a foot
120 5 and defining a recess 6. The support unit 2 has a diameter comparable to that of the main part of the body 1 and defines a top surface 7 which will locate below shoulder 3. This top surface 7 forms part of an inwardly directed flange, below which will be located
125 projections 8 on the cylindrical fitment portion 4 (as shown in Figure 2). Extending downwardly from the flange 7 are four feet 9 which will locate into the corners of a recess 10 of a
130 "catseye" housing 11. Lugs 12 project in-

wardly of both sides of the recess 10 of the housing 11.

The main post 1 and the support unit 2 will normally be supplied connected together.

- 5 These parts are formed by a plastics moulding process and whilst the plastics material is still soft the flange 7 can be snapped over the projections 8, so that the support unit cannot then readily be removed from the main body
- 10 1. However the support unit can rotate with respect to the main body 1. When the bollard is to be secured in the housing 11 the bollard is lowered into the recess 10 so that the feet 9 of the support unit locate into the corners of the recess and the narrow dimension of the foot 5 is lowered between the pairs of lugs 12. When the main body 1 is rotated (with respect to the support unit 7 and the housing 11) the wider portions 13 of the foot 5 locate
- 20 below the lugs 12, the extent of rotation being limited by stops 14. In this condition the bollard cannot readily be pulled out of the housing 11 (without rotation) and any tendency for the main body 1 to tilt will be resisted by virtue of the interengagement of the shoulder 3 onto the flange 7 of the support unit 2 which is securely mounted onto the base of the recess 10. If the engaging faces of the shoulder 3 and the flange 7 and/or the projections 8 are so formed as to define a camming arrangement, as the main body 1 of the bollard is rotated to locate the portions 13 of the foot 5 under the lugs 12, the support unit 2 can be caused to be
- 25 pressed downwardly into the housing 11 to provide even greater security of fixing of the bollard within the housing 11.

Another modification which could be incorporated would be to form the portion of the main body 1 immediately above the region of the shoulder 3 with a bellows-like formation enabling the top part of the main body 1 to flex about the vertical axis should the bollard be struck by a passing vehicle. The resilience of the bellows-like formation would be such as to cause the main body 1 to spring back into a substantially vertical attitude after the vehicle has passed.

Other modifications may be made to the general design of the road bollard, particularly the manner by which the support unit is interconnected with the main body 1, so as to be rotatable with respect thereto.

The bollard could also be supplied with an additional unit in the form of a base member of rubber or other suitable material which can be fixed to a road surface and which will define a recess with internal projecting lugs which will receive the base of the bollard. The corners of the recess of the base member would be formed to the same depth as a conventional "catsey" housing to receive the feet 9 on the support unit of the bollard.

The accompanying Figures 4 to 6 of the drawings illustrate details of a preferred de-

sign of the support unit 2. These drawings are respectively a side view, an underneath plan view and a partial section on line A-A of Figure 5.

- 70 The support unit 2 shown in Figures 4 to 6 is formed with an upstanding lip 15 which receives the lower end of the main post body 1 so as to surround the shoulder 3. Also the feet 9 are shown as having strengthening ribs 16 and 17.

A further modification which may be applied to the fitment portion 4 would be to define the recesses 6 in the manner of a screw thread so that the post is tightened down into the housing 11 as the post is rotated to engage the lugs 12.

CLAIMS

1. A temporary road bollard adapted to fit within a housing have a recess with lugs projecting inwardly of two facing sides of the recess, but above the floor of the recess, the bollard comprising an upstanding body and a support unit, the upstanding body having a fitment portion at one end incorporating a groove and leading to a foot part which can be lowered past the lugs, whilst subsequent rotation of the body will locate the foot part below the lugs to secure the body into the housing, the support unit being disposed about the fitment portion so as to be rotatable with respect to the body and defining feet which will locate into the base of the recess of the housing, the body defining a flange which will engage with the upper surface of the support unit, when the bollard is secured in the housing, so that the bollard will be retained in a substantially upright condition.

2. A bollard according to claim 1, wherein the body is stepped inwardly where it joins the fitment portion so as to define said flange.

3. A bollard according to claim 1 or claim 2, wherein the body and the support unit are interengaged so that they cannot readily be separated but can rotate with respect to each other.

4. A bollard according to claim 3, wherein the fitment portion has an inwardly directed flange on the inner circumference thereof which locates over one or more projections on the fitment portion.

5. A bollard according to claim 4, wherein the flanges on the body and on the support unit together with the projections define a camming arrangement whereby the support unit will be pressed downwardly into the housing as the body is rotated to locate the foot part securely below the lugs.

6. A bollard according to any one of claims 1 to 5, wherein the feet are defined on the support unit in positions which will locate into the corners of the recess in the housing.

7. A bollard according to any one of claims 1 to 6, wherein the groove incorporates stops limiting the extent of rotation of the bollard

relativ to th lugs.

8. A bollard according to any on of claims
1 to 7, wherein the portion of the body
immediately above th flange incorporates a
5 bellows-like formation which enables the bol-
lard to flex at that region.

9. A bollard according to any one of claims
1 to 8, wherein the upper surface of the
support unit is formed with an upstanding lip
10 which surrounds the flange on the body.

10. A bollard according to any one of
claims 1 to 9, wherein the groove defines a
screw thread arrangement which will engage
with the lugs in the recess as the body is
15 rotated within the housing to tighten the body
down onto the support unit.

11. A bollard according to any one of
claims 1 to 10, wherein the feet on the
support unit are provided with strengthening
20 ribs.

12. A bollard according to any one of
claims 1 to 11, including a base member to
be secured to a road surface and defining a
recess with internal projecting lugs to receive
25 the base of the body and the support unit.

13. A temporary road bollard substantially
as herein described with reference to the
accompanying drawings.